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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,373	03/24/2004	Satoshi Arakawa	Q80492	3963
23373	7590	07/01/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			ROSENBERGER, FREDERICK F	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/807,373	Applicant(s) ARAKAWA, SATOSHI	
	Examiner Frederick F. Rosenberger	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1 and 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "43" (Figure 8) and "41" (Figure 7) have both been used to designate the controller. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "22" has been used to designate both the electron beam propagation path (Figure 8) and the deflection magnet (Figure 7). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to

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avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **Rb** as shown in Figure 11b. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

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5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. The disclosure is objected to because of the following informalities: On page 9, line 23, "position check light Xc" should be "position check light Lp".

Appropriate correction is required.

### ***Claim Objections***

7. Claims 1 and 2 are objected to because of the following informalities:

Claim 1, line 10 and claim 2, line 5: The recitation of "in a visible region" make is unclear if applicant is referring to a visible region of the stimuable phosphor panel or a visible region of the electromagnetic spectrum. For the purposes of this Office action, the above phrase has been interpreted to refer those wavelengths in the visible region of the electromagnetic spectrum.

Claim 2, line 7: The positive recitation of "the irradiation of position check radiation" lacks proper antecedent basis in the body of the claim.

Claim 1, lines 3-5 and claim 2, lines 3-5: The recitation of "a radiation image reading means which reads out a radiation image from a stimuable phosphor panel which is disposed in a predetermined position to receive irradiation..." is unclear and confusing. As written, such phrasing implies that the radiation image reading means

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reads out a radiation image from the phosphor panel with the panel disposed in a position to receive irradiation. This is contrary to applicant's disclosure as the phosphor panel is conveyed from an irradiation position to a separate reading position for the radiation image reading means (see Figure 1).

Appropriate correction is required.

***Allowable Subject Matter***

8. Claims 1 and 2 would be allowable if rewritten or amended to overcome the objections as set forth in this Office action.

9. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1 is directed towards a quality control system for an irradiation apparatus comprising a radiation image reading means for reading out a radiation image from a stimutable phosphor panel wherein the phosphor panel at a predetermined position in the irradiation apparatus has been subjected to position check radiation from an irradiation means, uniform radiation from an irradiation means wherein the area irradiated by the uniform radiation is larger than that of the position check radiation, and visible light from a position check light irradiation means after the uniform radiation, and a relative position obtaining means for obtaining the relation between the irradiation position of the position check radiation and the irradiating position of the visible light based on the image read by the radiation image reading means. While methods are

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known in the prior art for checking alignment between a visible positioning light and subsequent invisible radiation, the prior art as a whole is silent with regards to the use of a position check radiation and a uniform radiation from the irradiation means that have different irradiation areas. Rather, the prior art tends to focus on the use of phantoms, wherein a given phantom is aligned with the visible light manually and then a subsequent image of the phantom, either on film or via digital means, is used to determine the relation between the visible light and the uniform radiation (see cited prior art below). As such, applicant's disclosure provides a novel and nonobvious improvement over the prior art. Accordingly, claim 1 would be allowable.

Claim 2 is directed towards a quality control system for an irradiation apparatus comprising a radiation image reading means for reading out a radiation image from a stimutable phosphor panel wherein the phosphor panel at a predetermined position in the irradiation apparatus has been subjected to position check irradiation from an irradiation means followed by visible light from a position check light irradiation means wherein the visible light has an irradiating position marker, and a relative position obtaining means for obtaining the relation between the irradiation position of the position check radiation and the irradiating position of the visible light based on the image read by the radiation image reading means. Phantoms capable of providing position markers on a radiation image are well known in the prior art. However, in those cases, irradiation by the visible position check light always occurs prior or before irradiation by the irradiation means. Also, irradiation by the visible position check light would not contribute to the stored image on the stimutable phosphor panel, but rather act as a

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means for alignment of the phantom (see cited prior art below). In contrast, applicant's disclosure has the irradiation by the visible position check light occurring after the irradiation by the irradiation means such that the irradiating position marker is an integral part of the obtained radiation image. As such, applicant's disclosure provides a novel and nonobvious improvement over the prior art. Accordingly, claim 2 would be allowable.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Reinstein et al. (US Patent 6,626,569) disclose a quality assurance system for a medical linear accelerator employing a specially designed imaging phantom. The phantom is aligned with the positioning light on the irradiation system and subjected to irradiation. Radiographic film inserted into the phantom allows correlation between the phantom alignment marks corresponding to the light field and the radiation image of the phantom.

Hughes (US Patent # 5,684,854) discloses a method for dynamically establishing field size coincidence between a positioning light and the radiation field of an irradiation apparatus. Radiation field sizes are correlated with light field sizes for a given radiation power and collimator configuration for a lookup table for automatic collimator adjustment.



Polkus et al. (US Patent # 6,478,462) disclose a method for determining X-ray to light field decentering on a radiographic image system wherein the light field is used to position a radio-opaque phantom. After positioning of the phantom, X-ray irradiation, subsequent imaging by a digital imager, and image processing are used in determining position relations between the light field and X-ray field.

Redfield et al. (US Patent # 3,909,616) disclose a method and apparatus for checking the superimposition of an X-ray and light field by using a plurality of target plates aligned with the light field which provide an image on X-ray film if the two fields are within allowable tolerance.

Ghilmansarai (US Patent # 6,783,275) disclose a method for the verification of radiation and light field congruence using a phantom positioned at the machine's isocenter. Subsequent irradiation by the light radiation and image acquisition followed by the X-ray radiation and image acquisition allows a comparison of the location of the fields based on the difference between the respective images. Images are obtained via a scintillator and CCD configuration.

11. This application is in condition for allowance except for the following formal matters:

- a. Objections to the drawings as described above in paragraphs 2-4.
- b. Objections to the specifications as described above in paragraph 6.
- c. Objections to the claims as described above in paragraph 7.

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Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick F. Rosenberger whose telephone number is 571-272-6107. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frederick F. Rosenberger  
Patent Examiner  
GAU 2878



DAVID PORTA

SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800